

**What is Claimed is:**

1. A mounting substrate for a semiconductor light emitting device comprising:

a solid metal block including a cavity in a face thereof that is configured for mounting a semiconductor light emitting device therein.

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2. A mounting substrate according to Claim 1 further comprising an insulating coating on a surface of the solid metal block.

3. A mounting substrate according to Claim 2 wherein the insulating coating is in the cavity, the mounting substrate further comprising first and second spaced apart conductive traces on the insulating coating in the cavity that are configured for connection to a semiconductor light emitting device.

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4. A mounting substrate according to Claim 3 wherein face is a first face and wherein the first and second spaced apart conductive traces extend from the cavity to the first face, around at least one side of the metal block and onto a second face of the metal block that is opposite the first face.

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5. A mounting substrate according to Claim 3 wherein the first and second spaced apart conductive traces on the insulating coating in the cavity comprise reflective material.

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6. A mounting substrate according to Claim 3 wherein the face is a first face and wherein the solid metal block includes therein first and second through holes that extend from the first face to a second face of the solid metal block that is opposite the first face, the respective first and second through holes including a respective first and second conductive via therein that extends from the first face to the second face and wherein a respective one of the spaced apart conductive traces is electrically connected to a respective one of the conductive vias.

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7. A mounting substrate according to Claim 6 wherein the first and second through holes extend from the cavity to the second face.

8. A mounting substrate according to Claim 2 wherein the solid metal block is a solid aluminum block and wherein the insulating coating comprises aluminum oxide.

5 9. A mounting substrate according to Claim 8 wherein the face is a first face and wherein the solid aluminum block includes therein first and second through holes that extend from the first face to a second face of the solid aluminum block that is opposite the first face, the respective first and second through holes including the insulating coating thereon that comprises aluminum oxide and a respective first and  
10 second conductive via therein that extends from the first face to the second face and wherein a respective one of the spaced apart conductive traces is electrically connected to a respective one of the conductive vias.

10. A mounting substrate according to Claim 6 further comprising third  
15 and fourth spaced apart conductive traces on the second face of the solid metal block, a respective one of which is connected to a respective one of the conductive vias.

11. A mounting substrate according to Claim 3 in combination with a semiconductor light emitting device that is mounted in the cavity and is connected to  
20 the first and second spaced apart conductive traces.

12. A mounting substrate according to Claim 11 in further combination with a lens that extends across the cavity.

25 13. A mounting substrate according to Claim 12 in further combination with an encapsulant between the semiconductor light emitting device and the lens.

14. A mounting substrate according to Claim 12 in further combination with a lens retainer on the solid metal block that is configured to hold the lens across  
30 the cavity.

15. A light emitting device comprising:  
a solid aluminum block including a cavity in a face thereof and an aluminum oxide coating on a surface thereof including on the cavity;

first and second spaced apart conductive traces on the aluminum oxide coating in the cavity;

a semiconductor light emitting device that is mounted in the cavity and is connected to the first and second spaced apart conductive traces;

5 a lens that extends across the cavity; and

an encapsulant between the semiconductor light emitting device and the lens.

16. A light emitting device according to Claim 15 wherein the face is a first face and wherein the first and second spaced apart conductive traces extend from  
10 the cavity to the first face, around at least one side of the solid aluminum block and onto a second face of the solid aluminum block that is opposite the first face.

17. A light emitting device according to Claim 15 wherein the first and second spaced apart conductive traces on the aluminum oxide coating in the cavity  
15 comprise reflective material.

18. A light emitting device according to Claim 15 wherein the face is a first face and wherein the solid aluminum block includes first and second through holes that extend from the first face to a second face of the solid aluminum block that  
20 is opposite the first face, the respective first and second through holes including the aluminum oxide coating thereon and a respective first and second conductive via therein that extends from the first face to the second face and wherein a respective one of the spaced apart conductive traces is electrically connected to a respective one of the conductive vias.

25 19. A light emitting device according to Claim 18 wherein the first and second through holes extend from the cavity to the second face.

20. A light emitting device according to Claim 18 further comprising third  
30 and fourth spaced apart conductive traces on the second face of the solid aluminum block, a respective one of which is connected to a respective one of the conductive vias.

21. A method of fabricating a mounting substrate for a semiconductor light emitting device comprising:

providing a solid aluminum block including a cavity in a face thereof that is configured for mounting a semiconductor light emitting device therein;

5 oxidizing the solid aluminum block to form an aluminum oxide coating thereon; and

fabricating first and second spaced apart conductive traces on the aluminum oxide coating in the cavity that are configured for connection of a semiconductor light emitting device thereto.

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22. A method according to Claim 21:

wherein the providing comprises providing a solid aluminum block including a cavity in a face thereof that is configured for mounting a semiconductor light emitting device therein and first and second through holes therein that extend from the first face to a second face of the solid aluminum block that is opposite the first face;

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wherein the oxidizing comprises oxidizing the solid aluminum block to form an aluminum oxide coating thereon and in the first and second through holes;

the method further comprising fabricating a respective first and second conductive via in the respective first and second through holes that are coated with aluminum oxide and that extends from the first face to the second face.

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23. A method according to Claim 21 wherein face is a first face and wherein the fabricating comprises fabricating first and second spaced apart conductive traces that extend from the cavity to the first face, around at least one side of the solid aluminum block and onto a second face of the solid aluminum block that is opposite the first face.

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24. A method according to Claim 22 further comprising fabricating a reflective coating on the first and second spaced apart conductive traces on the aluminum oxide coating in the cavity.

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25. A method according to Claim 22 further comprising fabricating third and fourth spaced apart conductive traces on the second face of the solid aluminum block, such that a respective one of the third and fourth spaced apart conductive traces

on the second face is connected to a respective one of the first and second conductive vias.

5           26.     A method according to Claim 21 further comprising mounting a semiconductor light emitting device in the cavity, connected to the first and second spaced apart conductive traces.

10           27.     A method according to Claim 26 further comprising mounting a lens across the cavity.

          28.     A method according to Claim 27 wherein the mounting a lens comprises mounting a lens across the cavity with an encapsulant between the semiconductor light emitting device and the lens.